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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/161,981	09/29/1998	AKITAKA KIMURA	Q051885	8269

7590

11/20/2002

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EXAMINER

MULPURI, SAVITRI

ART UNIT PAPER NUMBER

2812

DATE MAILED: 11/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/161,981

Applicant(s)
Kimura

Examiner
Savitri Mulpuri

Art Unit
2812



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 23, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above, claim(s) 1-4 and 9-17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-8 and 18-26 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

This action is in response to the applicant's response filed on 8/23/02.

Claim Rejections - 35 USC § 103

Claims 1-4, 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted prior art in combination with Kamiyama et al '638.

Rejection is maintained same as in paper no. 17, filed on 8/23/02.

Applicant's arguments filed on 8/23/02 have been fully considered but they are not persuasive. Applicant contends that recitation of instant claims 1-4 includes "at least one semiconductor layer of a second conductivity type is selectively grown in said opening at growth temperature which is higher than a temperature where the material of said mask is decomposed, a portion of the constituent elements of said material of said mask being the same as a portion of constituent elements of said semiconductor layer" And Claims 9-14 includes "forming at least one of current narrowing structure and a structure confining alight in a horizontal direction in parallel to substrate, forming a mask by a material including nitrogen as constituent element, and selectively crystal growing at least one nitride based semiconductor layer in an opening of said mask.

Admitted prior art teaches every processing step except using nitride mask as alternative silicon oxide mask. Kamiyama et al discloses forming art recognized and functionally equivalent silicon nitride stripe shaped mask as an alternative to silicon oxide stripe shaped mask and then

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growing epitaxial layer using nitride mask. Kamiyama also discloses GaN as mask and growing GaN in the holes of GaN mask.

Applicant argues that semiconductor layer is grown at temperature higher than decomposition temperature. However, such teaching is inherently disclosed in the Kamiyama. GaN is grown at a temperature of about 1050 C, which is higher than decomposition temperature of nitride mask(see col. 21, lines 711-23).

Applicant argues that the inventor of the instant application, Kimura first recognized the problem of silicon oxide film. Kamiyama neither recognized the problem nor found the solution. However, Kamiyama teaches the art recognized equivalents of silicon oxide or silicon nitride to grow GaN.

Applicant argues that even if amorphous GaN were replaced with the stripes of silicon nitride, the GaN would be formed not only on the sapphire substrate but also on the stripes of silicon nitride film. However, Kamiyama teaching is to modify the teachings of admitted prior art. The modified invention of admitted prior art would not be on the sapphire substrate but would be grown on the previously grown epitaxial layer.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mulpuri whose telephone number is 703-305-5184. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722..

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-5184.


SAVITRI MULPURI
PRIMARY EXAMINER